

Tulsa Tornado Tribune

Where People Who Know the Weather Get Their Weather



National Weather Service Tulsa, Oklahoma

Summer 2010

Craig Sullivan - Editor

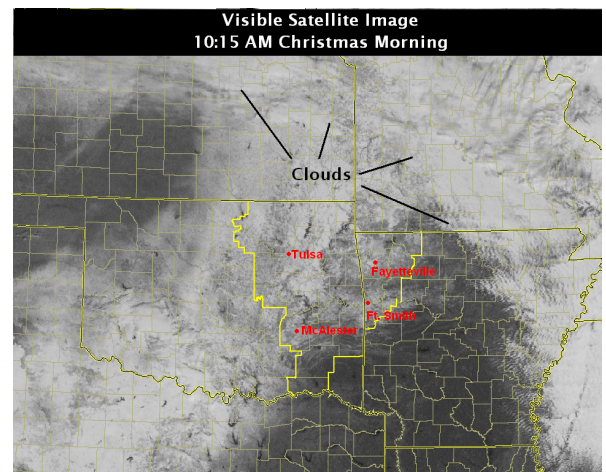
2009-2010: A WINTER TO REMEMBER

Stories By Karen Hatfield - Meteorologist

The winter of 2009-2010 was the winter that seemingly would never end. Residents of eastern Oklahoma and northwest Arkansas will likely remember this past winter as an unseasonably cold and abnormally snowy season, and the official data confirm this. The official observing sites at Tulsa and Fort Smith both recorded below normal average temperatures from December 2009 to March 2010. Tulsa also saw its second snowiest winter season on record and Fort Smith saw its sixth snowiest.

Area residents will also likely recall the three major winter storms that impacted eastern Oklahoma and northwest Arkansas between December 2009 and March 2010: the Christmas Eve blizzard, the January 28th-29th snow and ice storm, and the March 20th-21st snow storm.

More about the Winter of 2009-2010 on Pages Two though Five.



May Tornadoes Strike Area



A home severely damaged in Coweta, OK from a May 13 tornado (left).

Large tornado on the ground in McIntosh County, OK on May 10 (below).



Looking east on I-40 (7:31pm)
Large tornado near Hoffman
McIntosh Co. OK

Photo By Brian Stertz

Photo By Mike Teague -
NWS Tulsa

More About the Tornadoes on Page Nine.

After an exceptionally quiet severe weather season through April (see story on page 10), we caught up quickly with two significant tornado events in May; one on the evening of May 10, and another in the early morning of May 13. Each event produced several tornadoes...but were very different from one another.

Information is still somewhat preliminary as of press time, but it appears at least 20 tornadoes touched down in the NWS Tulsa forecast area during these two outbreaks.



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Winter 09-10: Christmas Eve Blizzard

The Christmas Eve blizzard crippled most of northeast Oklahoma and into portions of northwest Arkansas, with lesser impacts felt across parts of southeast Oklahoma. During the height of the storm, travel became virtually impossible and scattered power outages affected area residents.

December 24th was preceded by several days of unseasonably warm weather. The official observing site in Tulsa recorded daily average temperatures that were 12 degrees above normal on the 22nd and the 23rd. Fort Smith measured daily averages 10 and 18 degrees above normal, respectively, for these same days. With the warm and moist conditions in place across eastern Oklahoma and northwest Arkansas, thunderstorms developed across the area as early as the night of the 22nd as a large upper level storm system approached the Southern Plains. Additional thunderstorms developed during the afternoon of the 23rd ahead of a cold front moving eastward through the region. These thunderstorms pro-



duced hail up to a half inch in diameter, including in the Tulsa metro area.

During the early morning hours of the 24th, widespread rain developed over eastern Oklahoma and northwest Arkansas as the storm system moved into central and northern Texas. The storm system rapidly deepened as it moved eastward, causing wind speeds to increase and cold air to pour into the area. Sustained wind speeds were commonly in the 25 to 35 mph range, with frequent gusts in excess of 40 mph. Twenty-four observing sites across the area recorded gusts greater than 40 mph, with a maximum gust of 52 mph measured at both Muskogee and Foraker. The strong wind gusts resulted in sporadic power outages and some broken tree limbs.

As the colder air moved into the region midday on the 24th, the rain began to changeover to sleet and finally, snow in a west to east fashion. With the winds still gusting to 40 mph or more at times, blizzard and near blizzard conditions developed once the changeover to snow occurred. Visibilities were frequently reduced to a quar-

How Unusual?

Blizzard conditions are rare in eastern Oklahoma and northwest Arkansas...so rare, in fact, that Christmas Eve 2009 marked the first Blizzard Warning ever issued for Tulsa County! It was also only the second Blizzard Warning ever issued by the National Weather Service in Tulsa. The only previous Blizzard Warning was issued on November 30th, 2006, and included Osage, Pawnee, Washington (Oklahoma), Nowata, Craig, and Ottawa counties.

A Blizzard Warning was issued for Osage, Pawnee, and Creek counties at 10:50 am Christmas Eve morning. It was expanded at 2:21 pm to include Tulsa, Washington, Nowata, Craig, Ottawa, Rogers, Mayes, Delaware, Okfuskee, Okmulgee, McIntosh, Muskogee, Wagoner, and Cherokee counties.

Winter 09-10: January Snow and Ice

The winter storm of January 28th and 29th severely impacted most of eastern Oklahoma and northwest Arkansas, except for a small portion of Pushmataha and Choctaw counties in southeast Oklahoma. Ice accumulations led to thousands of power outages, and snow and sleet accumulations on roadways once again led to hazardous travel conditions.



A period of warm weather through the middle part of January preceded a strong cold front that passed through the area on January 27th. Temperatures plunged below freezing across parts of the area in the wake of the front, setting the stage for wintry precipitation. Precipitation developed and began to spread into eastern Oklahoma on the morning of the 28th and into northwest Arkansas during the afternoon in response to an approaching upper level storm system. The cold air was already deep enough for snow and sleet to prevail, with occasional light freezing rain, across parts of northeast Oklahoma to the north of Highway 412. Further south, the cold air was shallower, causing freezing rain to be the dominant precipitation type, occasionally mixing with sleet. Across portions of southeast Oklahoma and west central Arkansas, surface temperatures were just warm enough to

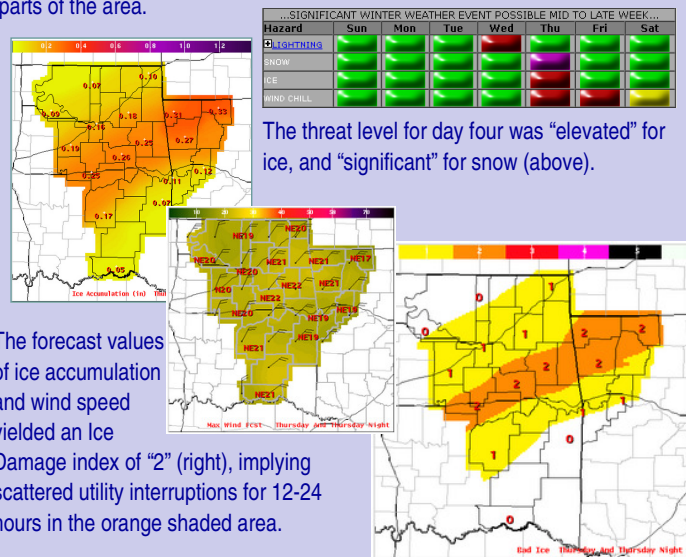
support liquid precipitation through the overnight hours of the 28th.

By the morning of the 29th, weak surface low pressure had developed on the cold front, which was now located in north Texas and Louisiana. As the surface low moved east into Louisiana, northeast winds strengthened across eastern Oklahoma and northwest Arkansas, drawing even more cold air into the region. The deepening of the cold air decreased the amount of freezing rain and sleet, leading to all snow falling across eastern Oklahoma and northwest Arkansas. Periods of moderate to heavy snow were common through the afternoon hours of the 29th.

As the storm system moved away from the area, the snow tapered off in the evening and overnight hours on the 29th. Widespread snowfall totals of 5 to 8 inches extended across northeast Oklahoma into northwest Arkansas, with 2 to 4 inch amounts found across southeast Oklahoma to the north of a McAlester to Heavener line. Ice accumulations between a quarter and three-quarters of an inch were measured across portions of northeast Oklahoma and northwest Arkansas located along and south of Highway 412 and north of Interstate 40.

Decision Support - Before the Storm

Four days before the late January winter storm, meteorologists at the NWS Tulsa were advertising the potential for destructive ice accumulations over parts of the area.



Winter 09-10: Spring Begins With More Snow

The March 20th-21st winter storm affected most of eastern Oklahoma and northwest Arkansas, with the greatest impacts felt to the east of a line from Nowata to Wilburton. This snow storm was a record breaking one for Fort Smith, with new March records for one and two day snowfalls established. Travel impacts and power outages again affected the area during the storm.

As an upper level storm system moved across southern Oklahoma and into southern Arkansas during the evening of the 20th and into the 21st, the areal coverage of precipitation began to increase once again. Snow and sleet began across parts of northeast Oklahoma and northwest Arkansas during the evening, transitioning to moderate to heavy snow during the nighttime hours on the

inches occurred across much of eastern Oklahoma and northwest Arkansas, with greater than 10 inch totals common across far eastern Oklahoma and parts of northwest Arkansas. Parts of Washington County, Arkansas, received 15 inches of snow during the storm.

Several new snowfall records were set in Fort Smith, AR from this winter storm (records began in 1883)

Event	New Record	Previous Record
Greatest daily snowfall total in March	5.5": March 21, 2010	5.0": March 12, 1890
Greatest 2-day snowfall total in March	7.5": March 20-21, 2010	5.3": March 11-12, 1968
Latest 1" or greater snowfall:	7.5": March 20-21, 2010	1.7": March 18, 1934
Highest monthly snowfall for March	7.5": March 2010	5.3": March 1968

20th. The snow spread into southeast Oklahoma and west central Arkansas early on the 21st.

The low pressure system intensified on the 21st, leading to strong and gusty winds, in addition to snowfall

bands featuring

Despite the large snowfall totals, the winter storm's impacts were not long duration. Temperatures warmed to above freezing across much of the area on the 21st and were well above freezing on the 22nd, leading to a rapid melting of the snow. Many of the main roadways, except for possibly parts of northwest Arkansas, were clear by the evening of the 21st, leading to minimal travel impacts immediately after the storm.

On the 19th, afternoon temperatures warmed into the upper 60s and lower 70s ahead of a strong cold front that pushed through the area that night. Temperatures dropped rapidly the next day...some locations saw temperatures plunge 25 degrees in 3 hours following the frontal passage.

ing very intense snowfall rates. Snowfall rates of 2 inches per hour were seen in some locations. The gusty winds also led to snow drifts of several feet deep.

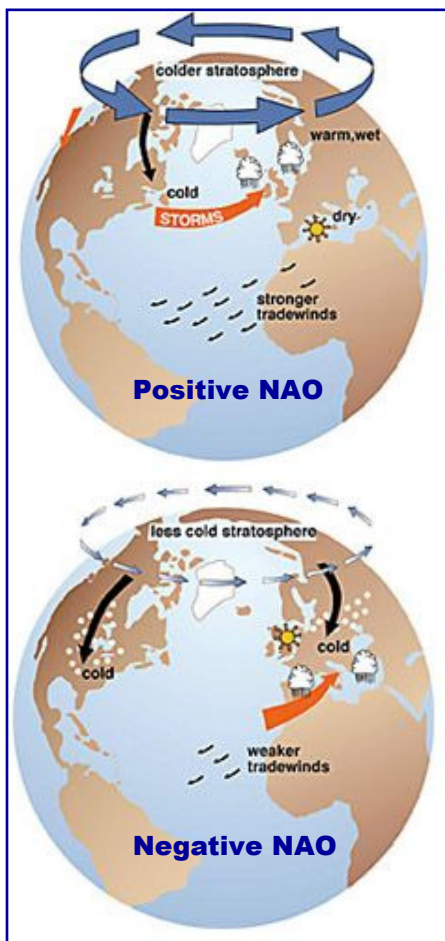
Precipitation began early on the 20th, with rain changing to snow across most of eastern Oklahoma and rain remaining across northwest Arkansas. Areas along the Kansas border saw moderate snow during this round of precipitation. The rain and snow diminished during the afternoon hours.

As the storm system moved away from the region, precipitation gradually ended from west to east during the afternoon and evening hours of the 21st. Widespread snowfall totals in excess of 6



Winter 09-10...Why So Cold?

What caused the persistent cold weather across our area through the winter? After all, we were in a moderate El Niño, which tends to limit Arctic outbreaks in the Midwest and South. Our coldest winter temperatures usually coincide with an intrusion of arctic air, typically steered south by strong northerly jet stream winds. As this cold air moves south across the United States, it is often warmed by the ground before making it this far south. If there's snow on the ground, however, there's less modification of the cold air...and this year there was a lot of snow on the ground in the Midwest.



But arctic air can only be ushered into the southern U.S. when atmospheric conditions allow it to be steered south. Contrary to typical El Niño conditions, intrusions of arctic air into the central and eastern U.S. were common during the past winter. As it turns out, a couple of other factors aligned just right to overwhelm the El Niño effects...The Arctic Oscillation and the North Atlantic Oscillation.

The Arctic Oscillation (AO) refers to opposing atmospheric pressure patterns in northern middle and high latitudes. During a negative AO, there is relatively high pressure over the polar region and low pressure at mid-latitudes, which tends to drive cold air into the continental United States, particularly east of the Rocky Mountains. In early Decem-

ber, the AO entered a strongly negative phase...eventually reaching the lowest December value ever observed and the lowest since January, 1977.

In addition to the AO, the North Atlantic Oscillation (NAO) was also in its negative phase beginning in December. Similar to the AO, the NAO is a measurement of the variations of atmospheric pressure in the North Atlantic Ocean. When this index is negative, there are generally colder winters in the United States, especially along the U.S. East Coast. The NAO varies from year to year, but tends to remain in a particular phase for several years.

It appears that the above factors combined in such a way to keep arctic airmasses coming south through much of the season...resulting in significantly below normal temperatures over eastern Oklahoma and northwest Arkansas from December 2009 through February 2010. 🌧️

Blizzard

(Continued from page 2)

ter mile or less in the blowing snow, and snow drifted to several feet. Many motorists were stranded, and air traffic was halted.

The blizzard conditions continued through much of the evening of the 24th and into very early Christmas morning, before tapering off toward sunrise Christmas Day. Snowfall totals were greatest across northeast Oklahoma, where widespread amounts of 4 to 6 inches fell. Isolated totals of 6 to 10 inches were seen primarily in two separate bands, one from western Pawnee County into central Osage County and another from Okmulgee County into Craig County. Amounts in the 2 to 4 inch range were seen across northwest Arkansas and parts of southeast Oklahoma north of a McAlester to Poteau line. 🌨️

I'm Dreaming...

A White Christmas (an inch or more of snow on the ground Christmas morning) is not a common occurrence here...but Tulsa and Fort Smith both recorded a White Christmas for 2009!

Tulsa previously saw a White Christmas in 2002, 2000, 1983, and 1966.

Fort Smith saw a White Christmas in 1990, 1975, and 1963.

50 Years Ago...May 5, 1960 Outbreak

One of eastern Oklahoma's most significant tornado outbreaks occurred fifty years ago, when at least 18 tornadoes tore through what is now the NWS Tulsa forecast area on May 5, 1960. Of those, four were "violent", including an F5 which traveled along a 70 mile path. All four violent tornadoes caused fatalities, while three other tornadoes also turned out to be killers. By the end of the night, 32 people were dead, at least 200 others injured, and an untold number of structures had been damaged or destroyed.

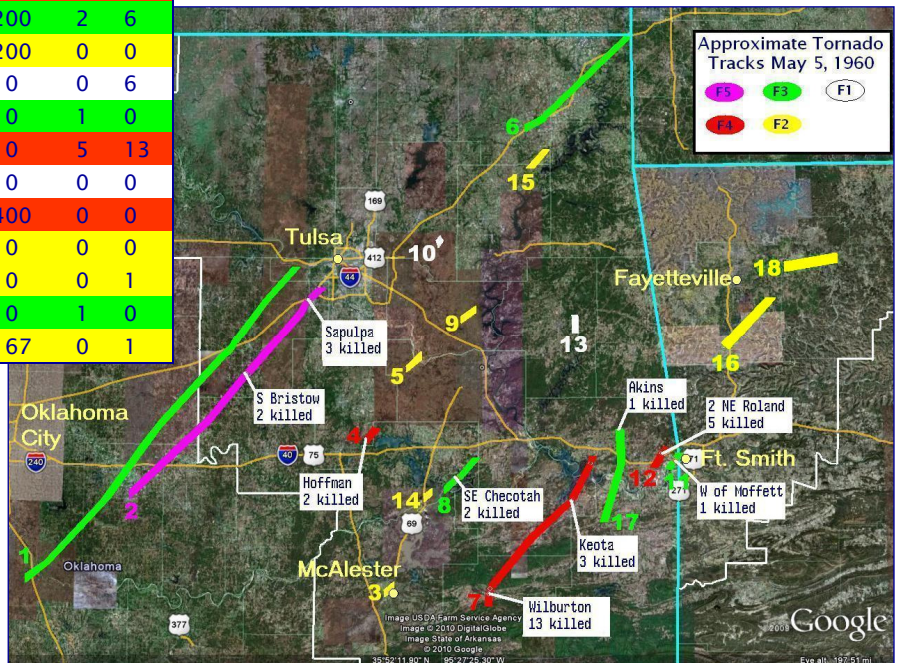
The event was part of a very active three-day period of severe weather from the Great Plains into the southeast. The day before, several strong tornadoes ripped through southern Oklahoma and north Texas, including a violent F4 that tracked through Choctaw and Pushmataha counties in southeast Oklahoma. Luckily there were no fatalities on the 4th, but things would be much different on the 5th.

A strong upper level low pressure system remained over the southwest U.S., while Gulf moisture continued to stream north into the area. This created more than enough instability and wind shear for severe storms. The first storms developed near a dry line in southwest Oklahoma early in the afternoon, and moved east into a very favorable severe weather environment over central and eastern Oklahoma. The first tornado to reach eastern Oklahoma was likely one of a series of tornadoes, which caused significant damage along a 110 mile path. Sev-

eral homes were damaged in Depew and just west of Bristow, both in Creek County.

Around 5 pm, a long track and violent F5 tornado developed near Shawnee in central Oklahoma. This tornado caused the first fatalities of the day as it passed south of Bristow, where three people were killed in the Iron Post area. Homes in this area were completely swept away. The tornado continued its violent path northeast through the west and north sections of Sapulpa, killing three, destroying 100 homes and damaging at least 200 others. The funnel lifted soon after, just sparing the city of Tulsa.

	Time (CST)	Length (miles)	Width (yards)	Fat.	Inj.
1	3:00 PM	101.9	400	0	0
2	5:00 PM	71.8	800	5	81
3	6:07 PM	4.1	500	0	0
4	6:16 PM	0.8	150	2	15
5	6:20 PM	4.9	100	0	0
6	6:30 PM	36.6	500	0	2
7	7:10 PM	62.4	200	16	106
8	7:10 PM	11.7	200	2	6
9	7:20 PM	5.1	200	0	0
10	7:30 PM	0.1	10	0	6
11	7:30 PM	4.5	10	1	0
12	7:40 PM	5.4	10	5	13
13	8:40 PM	4.6	10	0	0
14	8:50 PM	1	400	0	0
15	9:00 PM	6.4	10	0	0
16	9:30 PM	16.9	10	0	1
17	9:30 PM	23.7	10	1	0
18	10:45 PM	13.2	167	0	1



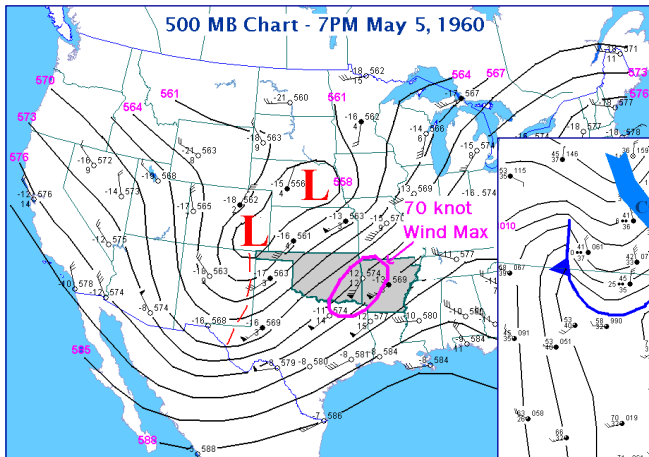
About an hour later, two more people were killed in the community of Hoffman (Okmulgee Co.) when an F4 tornado tore through the south side of town. Around 25 homes and other buildings were destroyed, some completely swept away. Reports stated that underbrush was cleared "as if a bulldozer plowed through town". Around the same time, 90 miles to the northeast, a strong tornado moved from near Vinita (Craig Co.) to Miami (Ottawa Co.), destroying several farmsteads. Two people were seriously injured along the Will Rogers Turnpike when the tornado overturned two truckloads of boats.

May 5, 1960

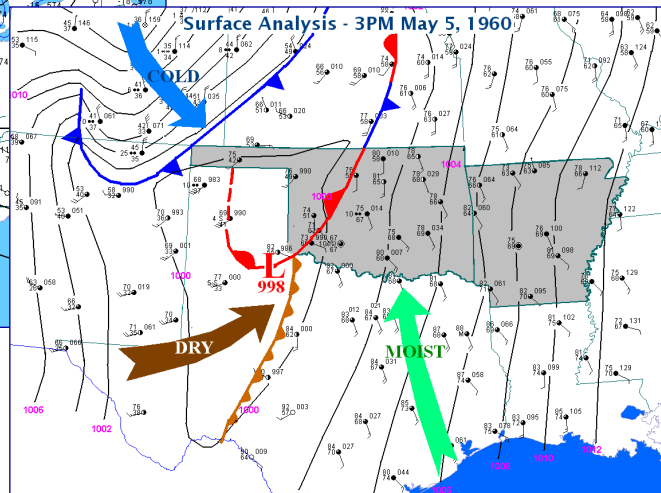
(Continued from page 6)

The worst was yet to come however, as the hour between 7pm and 8pm proved to be the most deadly of the evening. The town of Wilburton, OK (Latimer Co.) was the hardest hit area of the day, when a violent F4 tornado tore through the heart of town, leaving a two-block wide path of near total destruction shortly after 7pm. Thirteen residents of Wilburton lost their lives, including five in the little Calvary Baptist Church, where a number of members had gathered for a church supper honoring students

miles of each other. The first hit near the town of Moffett near the Arkansas border, where a truck driver was killed on U.S. Highway 64 when his truck was swept off the road. The tornado also damaged several homes near Moffett, and actually pulled a slab of pavement off the highway. About ten minutes later, a second twister touched down near Roland, completely destroying a home 2 miles northeast of town. A mother and four of her children perished in the home, and six other children in the family were injured. The husband and father was at work in nearby Fort Smith at the time. Other injuries



Upper air and surface maps from the afternoon of May 5, 1960



at Eastern A. & M. College. Eighteen blocks of the downtown and eastside residential areas were battered, with about 600 buildings receiving significant damage. That total included 82 homes which were totally destroyed. The same tornado continued to the northeast, killing three more people in Keota (Haskell Co.) and destroying 25 buildings. The tornado finally lifted just south of Sallisaw (Sequoyah Co.), but not before damaging ten more homes south of town.

Around the same time, yet another strong tornado touched down near Lake Eufaula dam. Three homes were destroyed and six more damaged in the Central High area. Two people were killed and five injured as a family attempted to reach a neighbor's storm cellar.

By 7:30 pm, the storms were affecting the extreme eastern portions of Oklahoma. Two separate killer tornadoes struck Sequoyah County ten minutes apart, within a few

occurred as two trucks were swept off Highway 64. The final fatality of the evening was near the town of Akins, OK (Sequoyah Co.), where 18 homes were destroyed and 50 others damaged.

Amid the tragedy were some notable survivor stories. The driver of a car in Mayes County, OK emerged from his car

unharmd after it was carried 75 feet by a tornado. The same tornado destroyed 12 cabins at the Cedar Crest resort in Mayes County, along with three homes, a church, a school and a store.

Northwest Arkansas did not escape this event entirely, as two strong tornadoes were reported. One tornado tracked from Blackburn to Elkins in Washington County, damaging six homes and three businesses. One home was lifted off its foundation and carried 150 feet. The final tornado of the evening in the Tulsa CWA touched down in Madison County, AR shortly before 11pm, damaging several farm homes near Whitener and Alabam. Several other tornadoes occurred in central Arkansas into the early morning hours of May 6, with one fatality in the town of Menifee.

Turn Around - Don't Drown

Each year, more deaths occur due to flooding than from any other severe weather related hazard. The Center for Disease Control reports that over half of all flood-related drownings occur when a vehicle is driven into hazardous flood water. The next highest percentage of deaths is due to walking into or near flood waters. Why? The main reason is people underestimate the force and power of water. As little as six inches of water can cause drivers to lose control of their vehicles, and two feet of water can sweep most vehicles off the road. Many of the deaths occur in automobiles as they are swept downstream.



Birch Creek flowing over CR2350 in Osage County

these drownings were likely preventable, but too many people continue to drive around the barriers that warn you the road is flooded.

Since 1999, at least twelve people have needlessly drowned in Oklahoma while attempting to cross flooded roadways. Many of



TADD sign installed on CR2350 in Osage County

To raise public awareness and to save lives, the National Weather Service in conjunction with the Oklahoma Floodplain Managers Association is providing Turn Around, Don't Drown signs to cooperating agencies in the state. TADD is a National Weather Service campaign to warn people of the hazards of walking or driving a vehicle through flood waters. Pryor, the location of the most recent flood related vehicle fatality in Oklahoma (May 1, 2009), received signs on May 6.

Several counties in Eastern Oklahoma have TADD signs posted at locations where flash flooding often leads to water over the roads. These warning signs are compliant with the Federal Highway Administration's regulations and can be produced and deployed as an official road sign.

Several counties in Eastern Oklahoma have Turn Around Don't Drown signs posted at locations where flash flooding often leads to water over the roads.

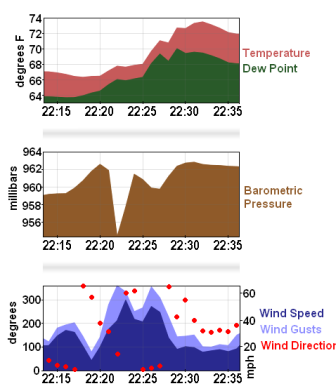
- ◆ Mayes County attached the signs to road barricades beginning in the summer of 2009 to reinforce the danger of flooded roads.
- ◆ Tulsa City/County installed signs in Fall 2009 at two frequently flooded locations:
 - 1) 800 N. Lewis, where the street goes under railroad tracks and flood waters have risen to within inches of the clearance sign under the bridge.
 - 2) Elwood Ave. between 81st and 91st Streets near the Jones Riverside Airport, where a series of dips in the road frequently flood.
- ◆ The Osage Nation has a Turn Around Don't Drown campaign as part of its Injury Prevention Program through the Emergency Management office. Like many counties across eastern Oklahoma and northwest Arkansas, Osage County has approximately 100 low water crossings that can create dangerous conditions when water is flowing over the road. In March 2010, TADD signs were installed at two of these low water crossings:
 - 1) CR2350 at Birch Creek between Barnsdall and Wynona (photos at right).
 - 2) CR2466 at Bird Creek just north of Barnsdall (between State Highways 99 and 123)
- ◆ Pittsburg County officials installed a set of TADD signs in March 2010 along State Highway 51, approximately 5 miles west of McAlester. According to Emergency Management Officials, the location has flooded for many years, and several water rescues have recently been needed.

If your community would like more information on purchasing these signs, contact the Service Hydrologist at the NWS Tulsa office.

May Tornadoes - The information on this page is considered preliminary...the actual number of tornadoes is likely higher than shown here.

May 10, 2010 Surveyed Tornadoes

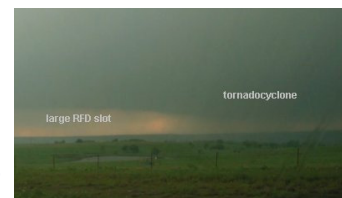
Time	Rating	Damage
1 5:14pm	EF-1	2 homes and several outbuildings damaged
2 6:35pm	EF-1	Many trees damaged...continuation of tornado from NWS Norman CWA
3 6:45pm	EF-1	Homes damaged, several outbuildings destroyed
4 7:03pm	EF-0	Several trees and one home damaged
5 7:04pm	EF-2	Boat dock and home on L. Heryetta destroyed, several other homes damaged
6 7:17pm	EF-1	Roof of Boley P.D. removed, several homes and numerous trees damaged
7 7:23pm	EF-2	Other "satellite" tornadoes observed; Several mobile homes destroyed
8 7:46pm	EF-1	
9 7:56pm	EF-1	
10 8:06pm	EF-1	Camping trailers damaged at Brewer Bend Park - 3 injuries; Boat docks damaged on L. Tenkiller
11 8:27pm	EF-1	Several trees uprooted.



One of the May 10 tornadoes actually passed close to the Burbank, OK Mesonet site. Close enough, in fact, that the sensors measured the tornado...sort of. At left are a series of one-minute observations recorded at the site, showing traces of temperature, dew point, pressure, and wind speed, gusts and direction.

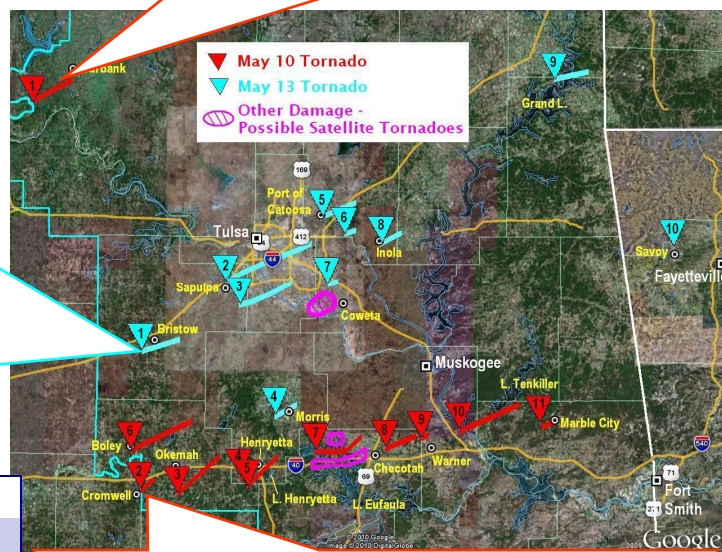
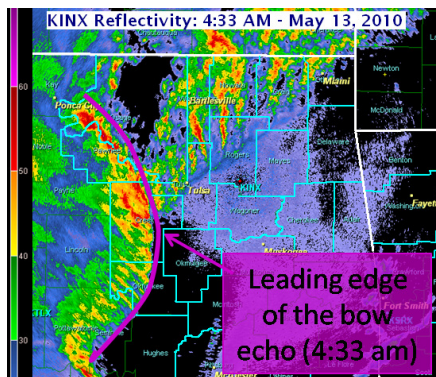
A peak wind gust of 65 mph was observed at 5:22 pm, the same time as a significant pressure drop. The wind direction also did a near "360" within a few minutes, implying some type of circulation passed very near.

The photograph at right was taken near the time of the Mesonet observation of a 63 mph easterly wind and significant pressure fall and rise. The view is to the south-west. No condensation in the vortex can be seen at this time...only a broad lowering in the cloud base.



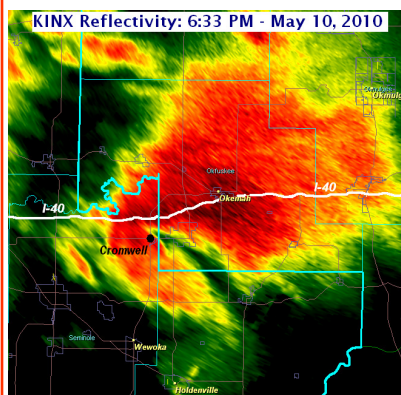
This line of severe thunderstorms developed across central Oklahoma before dawn, and as the squall line moved into eastern Oklahoma, exceptionally strong winds developed and formed a "bow echo".

While this is most often associated with damaging straight-line winds, tornadoes occasionally occur along the leading edge of the bow echo under the right conditions.



May 13, 2010 Surveyed Tornadoes

Rating	Damage
1 EF-1	Several trees down; Roof torn off of building in Bristow.
2 EF-2	Significant damage to homes and trees near Creek/Tulsa County line.
3 EF-1	Minor home damage; numerous trees snapped.
4 EF-2	Two homes severely damaged.
5 EF-2	Significant damage to Metal building at Port of Catoosa and two nearby homes.
6 EF-0	Tree damage.
7 EF-2	Significant damage to a home and adjacent outbuildings.
8 EF-2	Wood-framed metal shop destroyed; major damage to several homes; numerous power poles down.
9 EF-?	Damage to trees and outbuildings. Rating not yet finalized.
10 EF-0	Tree damage.



This supercell storm formed near the Oklahoma City area in the afternoon, and continued east into the NWS Tulsa forecast area. At least nine tornadoes were spawned by this one supercell across five counties. At the time of this radar image, significant damage was occurring in the town of Cromwell, OK (Seminole County).

Better Late Than Never?

By Dave Jankowski - Meteorologist

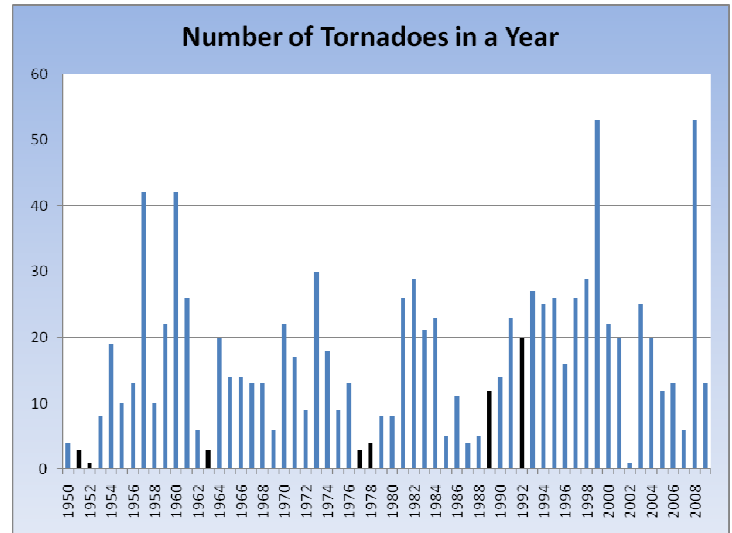
Tornadoes can occur at any time of the year across Oklahoma and Arkansas, although the main season for severe weather including tornadoes usually occurs from March through June for the County Warning Area (CWA) of WFO Tulsa. The peak of severe weather season tends to occur from late April through early May.

Official tornado records have been kept since 1950. From 1950 through 2009, there have only been seven years where the first tornado of the year was recorded on or after May 1st within the WFO Tulsa CWA. These seven years were 1951, 1952, 1963, 1977, 1978, 1989 and 1992. Of these seven years, five of them saw the first tornado in May, while 1951 and 1952 recorded their first tornadoes in June and July respectively.

Analysis of the data shows that in only about 12 percent of years does the tornado season begin on or after May 1st. However, even though it is rare for a season to start late, it does seem to occur every decade or so. This means that the late start for 2010 was indeed rare, but not unprecedented.

Further analysis determined that the first five years (1951, 1952, 1963, 1977 and 1978) were not only late in recording their first tornado, but also well below the normal number of tornadoes for the year. The average number of tornadoes for any given year (January through December) is 16.83 tornadoes. 1952 saw the fewest with only 1 tornado, while 1978 had the most with 4 tornadoes. The last two years were able to reach closer to normal with 12 tornadoes (1989) and slightly above normal with 20 tornadoes (1992).

2010 became the eighth year to record its first tornado within the WFO Tulsa CWA after the start of May. This season recorded its first tornadoes during the May 10 outbreak, followed by another outbreak three days later. The following week, severe thunderstorms produced 4 more tornadoes affecting Creek and Okfuskee counties during the evening of May 19. From these three tornado events in a nine-day span, the 2010 season now has a preliminary count of 31 tornadoes, which is above normal for the year. Thus, even though the 2010 season had a



Number of Tornadoes occurring within the WFO Tulsa CWA for the years of 1950 - 2009. The years recording the first tornado on or after May 1st are shown in black. Data was gathered from the Oklahoma Tornado Climatology webpage by Doug Speheger at WFO Norman, storm data from WFO Tulsa, historical tornado data archive from the Storm Prediction Center and historical storm reports from the National Climatic Data Center.

late start to it, the lateness ultimately did not factor into whether or not the year would be a below normal, normal or above normal year.

Further research and data analysis will be needed to determine what the reasoning would be for these eight years having had a late start to the tornado season. 🌩️

Local News

Happy Trails!

Congratulations to Senior Forecaster Max Blood, and Administrative Support Assistant Diana Riddle on their recent retirements from the National Weather Service!

New Flood Products

The NWS in Tulsa began issuing River Flood Watches and River Flood Advisories for specific river forecast points in our area on February 1, 2010. A Flood Watch is issued when flood stage could be exceeded within the next 48 hours, but forecast confidence remains too low for a warning. For example, the potential for extreme rainfall in the basin exists, but location of heaviest rainfall is uncertain. A Flood Advisory is issued when a point is forecast to exceed action stage, but not flood stage. 🌩️